

# End-Use Subcategory Measure

## Description

The primary measure being developed is related to producing LEED tables

[https://docs.google.com/document/d/1Ym\\_vi49xpaRFYvsqvpINgfhIG0astvUIXXnmHcEq8tk/edit?usp=sharing](https://docs.google.com/document/d/1Ym_vi49xpaRFYvsqvpINgfhIG0astvUIXXnmHcEq8tk/edit?usp=sharing)

If time allows, a second measure would be developed that applies specific end-use subcategories to OpenStudio object models.

## Modeler Description

If time is available, an additional measure will be developed that would allow users to apply specific end-use subcategories to various components in their OpenStudio model. Specific predefined end-use subcategory tags that correspond to LEED end-uses that have special treatment in the LEED spreadsheet will be used such as Fans-Parking Garage, Interior Lighting-Process, Fans-Kitchen Ventilation, Elevators and Escalators, etc..

The OpenStudio model supports end-use subcategories for the following objects:

- Lights
- ElectricEquipment
- GasEquipment
- HotWaterEquipment
- SteamEquipment
- OtherEquipment
- Exterior:Lights
- Fan:ConstantVolume
- Fan:VariableVolume
- Fan:OnOff
- Fan:ZoneExhaust
- WaterHeater:Stratified
- EnergyManagementSystem:MeteredOutputVariable
- Refrigeration:Condenser:AirCooled
- Refrigeration:Condenser:EvaporativeCooled
- Refrigeration:Condenser:WaterCooled
- Refrigeration:GasCooler:AirCooled
- Refrigeration:Compressor
- Refrigeration:System
- Refrigeration:TranscriticalSystem
- Refrigeration:SecondarySystem

This does not include the objects that end-use subcategories were added in EnergyPlus for release 8.8.0 which have OpenStudio objects:

- Boiler:HotWater
- Boiler:Steam
- Chiller:Electric:EIR
- CoolingTower:SingleSpeed
- CoolingTower:TwoSpeed
- CoolingTower:VariableSpeed
- WaterHeater:Mixed
- WaterUse:Equipment (had fields for subcategories prior to 8.8.0)

If support for the new end-use subcategories are added by other developers prior to the development of the measure, these objects would also be supported. This measure would have three arguments: type of object, name of object, end-use subcategory. The measure could be applied multiple times for each user OpenStudio model file.

## **Measure Type**

OpenStudio Measure

## **Taxonomy**

Reporting.QAQC

## **Intended Software Tools**

Apply Measures Now, OpenStudio Application, PAT, Analysis Spreadsheet

## **Use Case Types**

Model Articulation, Retrofit, Calibration

## **Arguments**

The end-use subcategory measure would have two arguments: name of object with the type of object, end-use subcategory. Each would be a string. The name of object and end-use subcategory would be a list of options.

## **Initial Condition**

OpenStudio model is available.

## **Final Condition**

The following log messages would be generated:

The end-use subcategory X has been applied to the object X named Y.

### **Warning**

The following log messages may be generated as a warning:

Warning: The end-use subcategory X could not be applied because object X named Y was not present.

### **Error**

The following log messages may be generated as an error:

The object X named Y was missing and the end-use subcategory X could not be applied.

### **Information**

The following log messages would be generated:

The end-use subcategory X has been applied to the object X named Y.